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DE RUEHSG #1118/01 3241610
ZNR UUUUU ZZH
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FM AMEMBASSY SANTIAGO
TO RUEHC/SECSTATE WASHDC 0301
INFO MERCOSUR COLLECTIVE
RHEBAAA/DEPT OF ENERGY WASHINGTON DC

UNCLAS SANTIAGO 001118

SIPDIS
STATE FOR WHA/BSC, WHA/EPSC AND EEB/ESC

E.O. 12958: N/A
TAGS: ENRG ECON EINT TRGY DOE CI
SUBJECT: CHILE'S RENEWABLE ENERGY WEEK INCLUDES U.S. EXPERTS IN SOLAR AND BIOFUELS

REF: MONTEVIDEO 616; SANTIAGO 641; SANTIAGO 496

¶1. SUMMARY: Chile, which is looking to boost its use of renewable energy as a means to improve energy security and combat the effects of climate change, hosted a week of renewable energy events October 5-9 focused on two areas where Chile appears to have comparative natural advantages: solar and algae-based biofuels. The prominent participation of U.S. energy experts -- including two sponsored by the USG -- reflects robust U.S.-Chile energy cooperation. END SUMMARY.

¶2. Background: Chile is a country abundant in renewable energy possibilities, unrivaled solar resources in the northern Atacama desert, over 4,200 kms of coastline with large tidal differentials, as well as wind and geothermal potential. In March 2008, Chile passed a law requiring electricity generators to produce at least five percent of their energy from non-conventional renewable energy sources (this excludes large-scale hydroelectric projects over 20 MW) by 2014 and 10 percent by 2024. Over the last year and a half, Chile's Economic Development Agency (CORFO) and its National Energy Commission (Commission Nacional de Energia - CNE) have been working to create favorable conditions for renewable energy development, including a transmission fee exemption for small scale generators and developing financial instruments, loan guarantees, grants for electricity transmission lines to connect renewable energy projects to the grid, grants for geothermal drilling, etc.

¶3. Along with CNE, CORFO is developing two solar pilot plants, one using photovoltaic (PV) technology and another using concentrating solar power (CSP), and launched a renewable energy center (REC) in October to act as an antenna for new renewable technologies and provide assistance to project developers (refs b and c). During President Bachelet's visit to Washington in June 2009, Chile's CNE and the U.S. Department of Energy (DOE) signed a Memorandum of Understanding (MOU) on Clean Energy Technology Cooperation to facilitate collaboration on energy efficiency and renewable energy, including technical assistance for Chile's new REC and CSP pilot project.

¶4. To promote investment in Chile's renewable energy sector, CORFO has also sponsored a number of workshops and seminars. The largest was the Fourth International Conference on Renewable Energy Investments in Santiago, September 7-8. The international event brought together over 1,000 private investors, carbon market intermediaries, national project developers, service suppliers, banks, public agents and experts in the renewable energy and CDM sectors. Although smaller in scale, Chile's "Renewable Energy Week" in October featured two major seminars on technologies the country may have a natural advantage in developing: solar and algae-based biofuels. End background.

Launch Features Nobel-Prize Winning Nuclear Physicist Touting Renewables

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¶5. Energy Minister Marcelo Tokman kicked off Chile's 2009 Renewable Energy Week with a comprehensive overview of Chile's energy challenges and efforts to secure its energy supply. Tokman described how high energy prices combined with drought and reduced supplies of natural gas from Argentina to create the "perfect storm" in 2008, which forced Chile to work to strengthen its institutions, increase energy efficiency and begin to develop the country's vast renewable energy potential. He highlighted pending government solicitations for two solar pilot plants. The launch concluded with the Energy Minister and other luminaries cutting a ribbon to open "Energiza Chile," an exhibition of the country's renewable energy associations, projects and technology providers.

¶6. Opening remarks by Nobel-prize winning physicist Carlo Rubbia focused on the potential of solar energy as a source of

hydrogen-based power. Rubbia also participated in a panel with three Chilean parliamentarians, who spoke about how Chile's move from petroleum-based sources to renewables is hampered by a lack of institutions, human resources and incentives.

Solar Seminar Highlights Dueling Technologies; Overcoming Technical Challenges

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¶7. An international solar seminar co-hosted by CNE and the U.N.'s Economic Commission on Latin America and the Caribbean (ECLAC) featured keynote speakers Stanford Ovshinsky, a U.S. inventor, and Dr. Rubbia. The speakers emphasized competing visions for harnessing solar power. Rubbia focused on concentrating solar power (CSP), and Ovshinsky's presentation highlighted his lifelong efforts to develop efficient photovoltaics (PV), including mass-production of thin solar films, and developing the rechargeable nickel-metal hydride (NiMH) batteries used in hybrid vehicles and many consumer electronics.

¶8. The solar seminar also featured developments in solar technologies by international experts from Germany and Spain, as well as various solar companies presenting on large-scale commercial projects. U.S. expert Craig Turchi, Director of a project to transform the CSP market at the U.S. Department of Energy's National Renewable Energy Lab (NREL), provided a pre-recorded presentation on various solar technologies and the challenges of storage, costs, environmental impacts and transmission.

International Perspectives on Biofuels from Algae - Chile's Potential

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¶9. A seminar on innovations in algae-based biofuels followed the

solar seminar. A central theme for the event was the potential for Chile to produce biofuels from algae given its rich marine resources, high levels of solar radiation (required for rapid growth of these organisms), and the fact that the country does not grow many of the food crops (e.g., sugarcane) generally associated with second generation biofuels. The seminar covered both micro- and macro-algae technologies and featured studies of the many different factors that impact biofuel production from these sources.

¶10. Two U.S. biofuels experts, Bryan Willson from Colorado State University (CSU), and Richard Simmons, a science and technology fellow at the U.S. Department of State, joined a panel on the "International Vision of Second Generation Biofuels" with representatives from the International Energy Agency (IEA), the European Commission and the Interamerican Development Bank. Simmons, an engineer who has worked on reducing internal combustion engines' emissions and fuel consumption, provided the U.S. and regional policy context by tracing the stages of first generation biofuels. He noted that ethanol and biodiesel products are commercially viable because certain countries, i.e., the U.S. and Brazil, committed to innovation and invested resources into biofuels research and development (R&D). He opined that second generation biofuels will require increased levels of international cooperation. Willson, Director of CSU's Engines and Energy Conversion Laboratory and owner of his own company, Solix Biofuels, provided insights from his university and private sector experiences developing micro algae-based biofuels and delved into the technical innovations needed to make algae-based products commercially viable.

¶11. InnovaChile, a program supported by CORFO, highlighted that it has provided approximately $6 million to create several

public-private consortiums to study/develop second generation algae derived biofuels. CORFO plans to assign 85% of its FY2010 funds to energy projects, including biofuels development.

U.S. Experts Make the Rounds

¶12. The Embassy helped program the U.S. biofuels experts in addition to their participation in the renewable energy seminars in Antofagasta. Willson gave a presentation on low-cost biofuels production from micro algae to the University of Santiago de Chile. He also met with representatives of the CNE, CORFO, and other government officials, along with university and industry representatives of several petroleum companies to exchange experiences and discuss development of a biofuels cluster in Chile. In addition to outreach with industry and academic representatives, Simmons held in-depth discussions with Fundacion Chile, a non-profit innovation incubator and think tank, and spoke at a roundtable discussion on "Bridging the Biofuel Generation Gap" hosted by post's Green Committee.

¶13. Ambassador Simons hosted Ovshinsky and a group of educators and innovators for a breakfast discussion on October 8. Ovshinsky noted that Chile has a natural resource in the sun that is much more powerful than oil and plenty of room in its northern desert for solar collectors. Citing the two solar pilot projects, he praised Chile for having the vision to make this happen, and toted the value of investing in education to promote innovation. Following the breakfast, Ovshinsky and the Ambassador participated in a panel on climate change at the Democracy and Development Foundation of former Chilean President Ricardo Lagos.

Public-Private Association to Develop Renewable Energy Capacities in Antofagasta

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¶14. On the margins of the solar conference, ESTH Officer and EPOL Specialist met with the Chilean Chamber of Construction - Antofagasta (CChC-A) chapter's president, Carlos Arenas, along with CChC-A staff and associated members. The group outlined efforts to organize business sector representatives and academics into a public/private consortium to promote R&D in non-conventional renewable energy in the region. They requested U.S. assistance in facilitating access to updated research and technology related to renewable energy (e.g., net metering, concentrated solar panel systems), as well as establishing ties with U.S. agencies, research laboratories (including NREL), and universities to identify academic, technical, and student exchange programs.

¶15. COMMENT: Since 2008, Chile has made progress on promoting renewable energy and has been somewhat successful in developing commercial wind and run-of-river hydroelectric projects. However, Chile is nowhere close to realizing the full energy potential of its rich array of natural resources and clearly recognizes the need to build international relationships to attract investment and innovation in renewable energy technologies in which it may have a comparative advantage. The four U.S. experts who participated in the week-long series of events in Antofagasta did an impressive job of showcasing U.S. innovation, policy and technologies in both solar and biofuels. The strong U.S.-presence reflects on-going collaborative efforts under both the new U.S.-Chile Clean Energy MOU and our long-standing Science and Technology agreement. These types of exchanges are critical as Chile continues to develop the policy framework needed to foster its renewable energy sector. END COMMENT.
SIMONS